

PATENT

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5 Applicant: Chia-Fu Chang
Filing Date: 06/25/2003 Art Unit: 2875
Serial No.: 10/604,093 Docket No.: ELUP0003USA

10 Title: LED LIGHT SOURCE HAVING A HEAT SINK

To: Commissioner for Patents
P.O. BOX 1450
Alexandria, VA 22313-1450

15 Subject: Information disclosure statement Under
37C.F.R. §1.56.

20 Dear Sir:

This is an Information Disclosure Statement in accordance with the duty to disclose information material to patentability under 37 C.F.R. §1.56. The Applicant wishes to
25 make of record the document listed on the accompanying form PTO/SB/08. It is respectfully requested that the Examiner initials the cited reference on the form and that it be made of record in the application and that a copy of the initialed form be sent to the Applicant with the next communication from
30 the Examiner.

Since the IDS is filed before the mailing date of a first

Office action on the merits, consideration of the information disclosure statement is hereby requested according to 37C.F.R.§1.97(b). The prior art patent contained in the information disclosure statement is cited in a communication
5 from the Taiwan Intellectual Property Office on Apr.27, 2004. The Applicant sincerely hopes that the Examiner can consider the item contained in the information disclosure statement.

According to the requirement set forth in 37C.F.R.§1.98,
10 the Applicant is submitting copy of the cited reference (Taiwan Patent Nos. 446197) and a concise explanation of the relevance in this application hereinafter.

TP No. 446197 discloses an LED device, comprising a heat
15 sink, a concavity installed on the heat sink, at least one LED chip set up within the concavity, a print circuit board set up on the heat sink, and the LED chip being fixed on the heat sink directly or fixed on the heat sink by inserting a sub-mount between the LED chip and the heat sink, wherein the
20 sub-mount is capable of transmitting the heat generated by the LED chip to the heat sink. In view of Fig.2A, 2B, 2C, 2E, 4B, and 6A, it is very obvious that the LED chip is set up within a concavity.

25 The amended claim 1 of the present invention is repeated below.

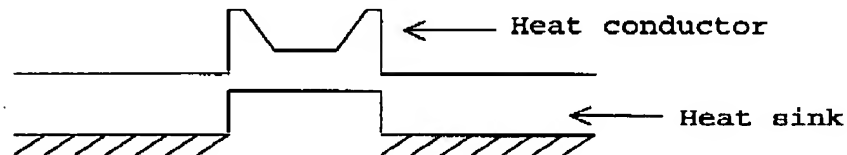
1. A light emitting diode (LED) light source comprising:
a printed circuit board (PCB) having a plurality of holes;
30 a heat sink connected under the PCB for conducting heat;
a plurality of heat conductors protruding the heat sink upward and formed on the heat sink corresponding to

each hole of the PCB for conducting heat, each heat conductor having a basin on the topside; and at least one LED chip attached to the basin of the heat conductor.

5

Compared with TP No. 446197, the heat conductors comprised in the present LED light source protrude the heat sink, while the LED chip is set up within a concavity in TP No. 446197. The heat sink and the heat conductors of the claimed invention can be formed by pattern flood upward. The illustration below is a simple description.

15



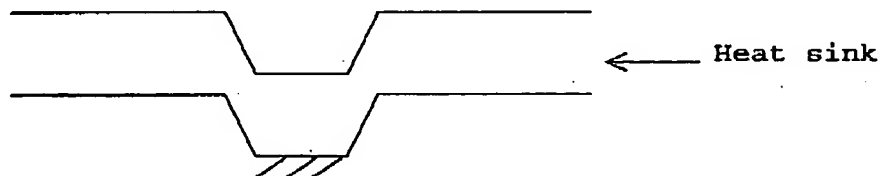
20

The oblique lines on the illustration represent the area of the claimed heat sink that contacts the lampshade, assuming the area is A.

25

In TP No. 446197, if the concavities are formed by etching or carving, the cost will be very high. However, if the concavities in TP No. 446197 are formed by pattern flood as well, the heat sink will protrude the heat sink downward. The illustration below is a simple description.

30



The oblique lines on the illustration represent the area of the cited heat sink that contacts the lampshade, assuming the area is B.

Comparing the two illustrations above, it is obvious that the area B is smaller than the area A. That is, the contacting area between the heat sink and the lampshade in the claimed invention is larger than that in TP No. 446197. The larger contacting area between the heat sink and the lampshade, the better the heat sink can transfer heat further. Therefore, it is very obvious that the heat sink of the present invention is not only different from the heat sink in TP No. 446197, but the effect of heat conduction is improved in the present invention as well.

Respectfully Submitted,

Winston Hsu

Date: 7/27/2004

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506

Merrifield, VA 22116

U.S.A.

e-mail : winstonhsu@naipo.com.tw

(Please contact me by e-mail if you need a telephone communication and I will return your call promptly.)

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**NORTH AMERICA
INTERNATIONAL PATENT OFFICE**

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

TEL: +886-2-8923-7350 FAX: +886-2-2929-5950 e-mail: winstonhsu@naipo.com.tw

FAX TO: ART UNIT: 2875

Tel: (571) 272-2800

Fax: (703) 872-9306

FROM: Winston Hsu, PATENT AGENT, REG. NO. : 41,526

SERIAL NO.: 10/604,093

ATTORNEY DOCKET NO.: ELUP0003USA

**SUBJECT: PRELIMINARY AMENDMENT &
INFORMATION DISCLOSURE STATEMENT**

TOTAL PAGES: 23 PAGES (INCLUDING COVER PAGE)

Winston Hsu 2004/07/27

ELUP0003USA0_D1,A3_1

PTO/SB/97 (08-00)
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APPLICATION NUMBER: 10/604,093

PAPERS INCLUDED:

(1) Transmittal Form	1 PAGE
(2) Fee Transmittal	1 PAGE
(3) Preliminary Amendment	4 PAGES
(4) Information Disclosure Statement	15 PAGES

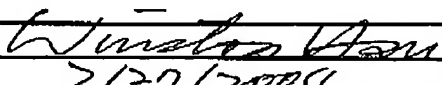
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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/804,093	
	Filing Date	06/25/2003	
	First Named Inventor	Chia-Fu Chang	
	Art Unit	2875	
	Examiner Name		
Total Number of Pages in This Submission	21	Attorney Docket Number	ELUP0003USA

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
Remarks		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	Winston Hsu, Reg. No.: 41,526	
Signature		
Date	7/27/2004	

CERTIFICATE OF TRANSMISSION/MAILING		
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Signature		Date

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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FEE TRANSMITTAL
for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 0.00**Complete if Known**

Application Number	10/604,093
Filing Date	06/25/2003
First Named Inventor	Chia-Fu Chang
Examiner Name	
Art Unit	2875
Attorney Docket No.	ELUP0003USA

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:

Deposit Account Number	50-3105
Deposit Account Name	North America Intellectual Property Corp.

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge any additional fee(s) or any underpayment of fee(s)☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code (\$)	Fee Code (\$)	Fee Code (\$)	Fee Code (\$)		
1001 770	2001 385			Utility filing fee	
1002 340	2002 170			Design filing fee	
1003 530	2003 265			Plant filing fee	
1004 770	2004 385			Reissue filing fee	
1005 160	2005 80			Provisional filing fee	

SUBTOTAL (1) (\$) 0.00**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

Total Claims		Extra Claims		Fee from below		Fee Paid
Independent Claims	Multiple Dependent	-20** =	-3** =			

Large Entity		Small Entity		Fee Description
Fee Code (\$)	Fee Code (\$)	Fee Code (\$)	Fee Code (\$)	
1202 18	2202 9			Claims in excess of 20
1201 86	2201 43			Independent claims in excess of 3
1203 290	2203 145			Multiple dependent claim, if not paid
1204 86	2204 43			** Reissue independent claims over original patent
1205 18	2205 9			** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 0.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65		Surcharge - late filing fee or oath	
1052 50	2052 25		Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130		Non-English specification	
1812 2,520	1812 2,520		For filing a request for <i>ex parte</i> reexamination	
1804 920*	1804 920*		Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*		Requesting publication of SIR after Examiner action	
1251 110	2251 55		Extension for reply within first month	
1252 420	2252 210		Extension for reply within second month	
1253 950	2253 475		Extension for reply within third month	
1254 1,480	2254 740		Extension for reply within fourth month	
1255 2,010	2255 1,005		Extension for reply within fifth month	
1401 330	2401 165		Notice of Appeal	
1402 330	2402 165		Filing a brief in support of an appeal	
1403 290	2403 145		Request for oral hearing	
1451 1,510	1451 1,510		Petition to institute a public use proceeding	
1452 110	2452 55		Petition to revive - unavoidable	
1453 1,330	2453 665		Petition to revive - unintentional	
1501 1,330	2501 665		Utility issue fee (or reissue)	
1502 480	2502 240		Design issue fee	
1503 640	2503 320		Plant issue fee	
1460 130	1460 130		Petitions to the Commissioner	
1807 50	1807 50		Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180		Submission of Information Disclosure Stmt	
8021 40	8021 40		Recording each patent assignment per property (times number of properties)	
1809 770	2809 385		Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385		For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385		Request for Continued Examination (RCE)	
1802 900	1802 900		Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 0.00**SUBMITTED BY**

Name (Print/Type) Winston Hsu

Signature *Winston Hsu*

Registration No. (Attorney/Agent)

41,526

(Complete if applicable)

Telephone 886289237350

Date

7/27/2004

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